Conduct of Operations Course

CASE STUDY 1:

Midnight Shift Surveillance

Time Required: 60 minutes

Reference:
(a) DOE 5480.19, Conduct of Operations Requirements for DOE Facilities
(b) DOE-EM-STD-5505-96, Operations Assessments

Activities: Using the case study materials, the student will:

1. Identify the deviations from expectations.
2. Identify the DOE 5480.19 requirements which are not being met.

Objectives: The above activities support student performance of the following:

1. Refer to a copy of DOE 5480.19 and locate applicable guidelines and requirements for specific activities. (1.a)
2. For each of the eighteen chapters in Attachment I to the Order, explain how each chapter contributes to an effective and safe operational environment. (1.b)

Instructional Aids/Materials:

1. Methods available for students to display results (e.g. Overhead projector, projector screen, blank viewgraphs, and marking pens).
2. Instructor Guide and Student Workbook.
3. DOE-EM-STD-5505-96, Operations Assessments

Presentation Method: Case Study: Divide the class into groups. Each group presents the results on the overhead projector while the instructor critiques.

Instructor Notes: Solicit class participation in the critique process. Discuss accuracy/appropriateness of group results. Following the group presentations, review the answers provided in the instructor guide with the class. Ensure that any issues which are not covered in the student presentations are thoroughly discussed.

MIDNIGHT SHIFT SURVEILLANCE

When observing shift routines at a DOE facility you follow a surveillance operator during an entire shift. At shift turnover, the off-going operator states that "all is normal." During the shift, you accompany the operator on tours throughout the facility. While in the radiological controlled area at tank farm number two, you notice a pair of gloves, two sample bottles, and a half full pail of liquid unattended on the ground. Upon exiting the area, the count rate meter alarms intermittently. The operator informs you that the back plate of the probe is loose and therefore the probe should be held sideways to prevent the meter from alarming. The surveillance operator reports the malfunctioning probe to the Safety Department. The surveillance operator also takes this opportunity to demonstrate that the portable radio used while on tours causes fluctuations in a nearby tank level indicator. Later, while touring the pump station, you notice a sign that reads "IF MANUALLY OPERATED, DO NOT OVER TORQUE THIS VALVE." When questioned, the surveillance operator states that she does not understand the meaning of this sign.

Two days later..... You observe another surveillance operator during an entire shift. During shift turnover, the off-going operator states that the count rate meter in use at the control point to tank farm number two is alarming intermittently. Furthermore, he states that "the Safety Department has been informed." During the shift, you accompany the operator on tours throughout the facility. While in the radiological controlled area at tank farm number two, you notice that the pail of liquid observed earlier in the week is now full. Additionally, you observe a wrench and two foot piece of pipe on the floor next to a capped pipe fitting. Upon exiting the area, you find that the count rate meter operates normally. The operator acts surprised when the count rate meter does not alarm and tells you that he had reported the defective meter to the Safety Department three times this week. While touring the pump station, you ask this operator if he can explain the meaning of the sign that reads "IF MANUALLY OPERATED, DO NOT OVER TORQUE THIS VALVE." The operator states that this valve is always operated from the control room, and if directed to operate it manually, he will ask the control area operator for guidance.

1. Identify any deviations from expectations and state the DOE 5480.19 requirements which are not being met.

Ch. 2: Shift Routines and Operating Practices

(pg. I-20 guideline 1, Status Practices)

The operator responsible for the facility should be promptly notified of all changes in facility status, abnormalities, or difficulties encountered in performing assigned tasks. Similarly, the operator should notify the shift supervisor of any unexpected situations.

(pg. I-20, guideline 2, Safety Practices)

Operations personnel should adhere to the requirements of the facility industrial safety program. Proper hearing, eye, head, foot, and respiratory protection should be worn in designated areas to reduce the potential for injury.

(pg. I-20, guideline 3, Inspection Tours)

Operator tours should be of sufficient detail to ensure that the status of equipment is known. Each operator should inspect all areas for which he is responsible and note any deficiencies that may be present (e.g. water leaks, safety hazards, radiological problems, housekeeping problems, etc.)..Operators should take appropriate action to correct or report deficiencies noted during tours and document them in accordance with the facility maintenance work request system.

(pg. I-21, guideline 4, Round/Tour Inspection Sheets)

Operators should use the narrative section to document major evolutions, causes of abnormal conditions, and actions taken to correct abnormal conditions. The causes of abnormal indications should be promptly investigated with supervisors becoming involved as appropriate.

(pg. I-22, guideline 5, Personnel Protection)

Operators should adhere to all posted personnel protection requirements and observe proper practices and precautions while in controlled areas. Operators should correctly utilize appropriate monitoring instruments when required. Operators should promptly report protection deficiencies and hazards to control personnel/appropriate protection personnel. Operators should take appropriate actions to reduce or correct the hazards.

(pg. I-23, guideline 6, Response to Indications)

Prompt action should be taken to investigate the cause of abnormal or unexpected indications so that prompt corrective action can occur. When malfunctioning or inaccurate instruments are discovered, they should be appropriately identified to prevent subsequent confusion, and instrument and control personnel should be notified to effect repairs.

Related Discrepancies

- ***It does not appear that either operator was aware of the abnormal conditions discovered in the radcon area, and neither operator contacted the shift supervisor of these unexpected situations.***
- ***A potential contamination problem exists, however, the first and second shift operators entered the radcon area without any PPE.***
- ***Operators on both the first and second shift did not take any action to reduce the contamination hazard, rather they left potentially contaminated material adrift.***
- ***The operators did not enter the abnormal conditions encountered in the radcon area in a round/tour inspection sheet, did not investigate the cause of these conditions, and did not get a supervisor involved.***
- ***The operators did not review a radiological work plan or any postings to see if there was any requirement for PPE, and entered the radcon area.***
- ***The monitoring instrument is defective, however, it has not been repaired or replaced and is still being used in the radcon area.***
- ***The defective monitoring probe does not appear to be identified as defective, since it is still in use.***

Ch. 4: Communications

(pg. I-30, guideline 4, Radios)
Radio usage should not be allowed in areas where electronic interference with plant equipment may result. Areas where radio use is prohibited should be delineated.

Related Discrepancies

- ***The first shift operator used a portable radio and made the tank level indication fluctuate.***

Ch. 11: Logkeeping

(pg. I-73, Establishment of Operating Logs)
Narrative logs should be established at all key shift positions. As a minimum, a narrative log should be maintained by the operations supervisor or the control area operator.

(pg. I-73, guideline 2, Timeliness of Recordings)
Information should be promptly recorded in the logs.

(Pg. I-73, guideline 3, Information to be Recorded)
The following information should be recorded in at least one station log: facility mode or condition changes; abnormal facility configurations; status changes to safety-related and other major facility equipment; occurrence of reportable events; etc.

Related Discrepancies

- ***None of the abnormal events or configurations appeared to be recorded in logs, if any are maintained at all.***

<u>Ch. 12: Operations Turnover</u>

(pg. I-75, guideline 1, Turnover Checklist)

Equipment operator checklists or other formal documents should provide for noting major components status, abnormal lineups, valid alarms on local control panels, and evolutions planned or in progress. Operator checklists or other documents reviewed at shift change should provide for recording vital information about facility status.

(pg. I-77, guideline 2, Document Review)

Oncoming operators should review documents specified on their checklists prior to assuming responsiblity for their shift position. Document review should be as intensive as necessary for the oncoming personnel to understand important history, present status, and planned events.

(pg. I-77, guideline 3, Control Panel Walkdown)

Walkdowns of appropriate control panels should be conducted by each shift watchstander to determine plant status.

(pg. I-78, guideline 4, Discussion and Exchange of Responsibility)

The offgoing operator should explain all items noted on the turnover checklist and oncoming operators should ask any pertinent questions.

Related Discrepancies

- ***During the first turnover, the offgoing operator stated "all is well" and none of the activities associated with proper turnover were ever performed.***
- ***The only item discussed during the second turnover was the defective count rate meter. None of the other activities associated with proper turnover were performed.***

<u>Ch. 17: Operator Aid Postings</u>

(pg. I-95, Introduction)

An operator aid program should be established to ensure that operator aids that are posted are current, correct, and useful.

(pg. I-95, guideline 2, Approval)

The person approving an operator aid should ensure that the aid is necessary and correct.

(pg. I-96, guideline 6, Review)

The posted operator aids should be reviewed periodically to ensure they are still necessary and correct. During routine facility inspections, operations personnel should review operators aids to ensure that they are approved.

Related Discrepancies

- ***The operator aid for the operation of the valve does not provide sufficient information (e.g., when would manual operation occur, what is the torque value, what is the procedure, etc.). This fact is evidenced by the operators' lack of understanding of the aid.***

- ***The operator aid is not being reviewed by operations personnel. This is also apparent from the operator's lack of understanding of the aid; if it were being reviewed, the issue of understanding the aid should have already surfaced.***

NOTES